

Amount 32.90

North Carolina expense.

O. J. Winterman

Of Lakeside Irrigation Co.,
Eagle Lake, Tex
Desires to know whether or not it
is unlawful to use Strychnine.

E. V. Visart,

2719 Gaines St.,
Little Rock
Ark.

Wing averaging longer than tail

Megascops m. major

Wing averaging shorter than tail

Megascops m. macrurus

M. m. major

♂ wing 175.8 - 189.2 (182.4) tail 162.1 - 186.4 (170.7)
♀ wing 133.4 - 146.1 (142.7) tail 124.5 - 135.9 (129.5)

M. m. macrurus

♂ wing 184.2 - 198.9 (189.2) tail 195.6 - 236 (217.2)
♀ wing 142.2 - 158.5 (150.1) tail 129 - 165 (147.8)

Bealton to Culpepper Crows flying east

Culpepper to Mitchell " South

just seen 7:30. 7:40 abundant

Migrant Shrike Culpepper

Cardinal

Sparrowhawk 7:40

Chickadee
Tufted Titmouse
White breasted Nuthatch.
Indigo Bunting
Blue Grosbeak
Mockingbird
Summer Tanager
English Sparrow
Chipping Sparrow
Blue-gray Gnatcatcher
Cardinal
Carolina Wren
Wood Pewee
Hairy Woodpecker
Chantrelle
Great Crested Flycatcher
Green Heron
Prairie Warbler
Field Sparrow
Vesper Sparrow
Warren's
Blue Jay
Downy Woodpecker
Red-headed

Western Gnatcatcher
Warren's

Mr. John O. Reilly
Crown

4029. *Guiraca caerulea* ♂ ad June 6
 4030 *Piranga rubra* ♀ ad "
 4031 *Comptosia americana* ♂ ad "
 4032 *Oreodophorus sexlineatus* ♂ ad June 7
 4033. *Dendroica dominica* " "
 4034 *Guiraca caerulea* " "
 4035. *Piranga rubra* ♀ ad "
 4036. *Archibuteo colubus* ♂ ad "
 4037 *Zenaidura m. carolinensis* " "
 4038 " " "
 4039 " " "
 4040 " " "
 4041 " " "
 4042 *Corvus brachyrhynchos* " "
 4043 *Archibuteo colubus* ♀ ad June 8
 4044 *Zenaidura* ♂ ad June 9

June 9 Arcob
 Morning Dove ♂ ~~5:30a~~ 10:00

Wood Thrush
 Red-eyed Vireo
 Yellow-throated Vireo
 Chickadee
 Acadian Flycatcher
 Buzzard
 Kingbird
 Robin
 Bluebird
 Yellow-throated Warbler
 Parula Warbler
 Pine Warbler

yellow billed Cuckoo
Kingbird
Bluebird
Ovenbird
Goldfinch
English Sparrow
Prairie Warbler
Field Sparrow
Cedar Waxwing
Acadian Flycatcher

Downy Woodpecker

Zenaidura macroura
oil gland much

June 8 Arcola

Robin

Chipping Sparrows

English Sparrows

Wood Thrush

Mourning Dove

Bluegray Gnatcatcher

Pine Warbler

White-breasted Nuthatch

Red-shouldered Hawk

Red-headed Woodpecker

Flicker

Hairy Woodpecker

Cardinal

White-eyed Vireo

Yellow Throated Vireo

Red-eyed Vireo

Blue Grosbeak

Indigo Bunting

Summer Tanager

Carolina Chickadee

Indigo Titmouse

Carolina Wren

Downy Woodpecker

Wood Pewee

Hooded Warbler

Yellow Throated Warbler

Hummingbird

Indigo Bunting

Yellow Warbler

Chat

Great Crested Flycatcher

Mockingbird

2:45 5:00P. 5:00P.
~~3:10 3:12 10:18~~

Buzzard
White-eyed Vireo
Broad winged Hawk
Hooded Warbler
Parula "
Wood Thrush
Downy Woodpecker
Great Horned Owl
Coopers Hawk
Cnemidophorus sex lineatus 3
Turtles

Then six fields of corn examined the
stand seemed normal. Would suggest that
Doves came to such fields to pick up waste
grain.

Two fields of peanuts no damage is
apparent.

Doves eating
||||

seen
|||||

No damage on a small planting
of Soy beans.

June 7 Arcola

Great Crested Flycatcher
Chant
Robin

Wood Pewee

Crow ♂ ~~9:15~~

Chipping Sparrow

Junco

Penn. Warbler

Carolina Chickadee

Yellow-throated Warbler ~~6:45a~~

Carolina Wren

White-breasted Nuthatch

Parula Warbler

Mockingbird

Night Hawk

Scrub Jay

Red-eyed Vireo

Yellow-throated Vireo

Yellow-billed Cuckoo

Mourning Dove ~~109.5~~ ♂ ~~107.3~~ ♂ ~~107.1~~ ♂ ~~109.1~~

Kingbird

Bluebird

Blue-gray Gnatcatcher

Cardinal

Catbird

Quincebird

Goldfinch

Summer Tanager ♀ ~~4:45P~~

English Sparrow

Indigo Bunting

Prairie Warbler 8:00

Blue-gray Gnatcatcher ♂ ~~107.1~~

Acadian Flycatcher

Field Sparrow

Buzzard
Red eyed Vireo
Chat
Field Sparrow
Black-throated green warbler
Hooded Warbler
Brown Thrasher
Brown headed Nuthatch 5
Nighthawk

Great Horned Owl
1. *Sylvilagus*

Dove III III possibly 10
came in at 5:45 and then left very wild
to horse droppings?

worked in fields from 5:00 a.m. to 7:00 P.M. -
continuous play of observation

June 6, Ocala

Robin

Humbird

Blue gray gnatcatcher

Ornith

Mourning Dove 11

Carolina Wren

Wood Pewee

Chipping Sparrow

Indigo Bunting

White breasted Nuthatch

Crow

4:00 P.

Summer Tanager ~~8:15 A~~

Great crested Flycatcher

Mockingbird

Maryland Yellowthroat

Field Sparrow

Pine Warbler

Parula 12:00
~~8:15 A~~

Yellow throated Warbler 11:45

Blue grosbeak ~~8:15 A~~

Prairie Warbler

Kingbird

Hairy Woodpecker

Cardinal

Hummingbirds at Vetch

Goldfinch

Bluebird

Cerulean Flycatcher

Purple Martin

Academy Waxwing

Chimney Swift

Yellow throated Vireo

Carolina Chickadee

Chipping Sparrow
Chapel Hills Finch
Goldfinch

Asymmetry of rows

- (1) no telephone missing
(2) " " "

- 3
4
3
- Cotyledons missing or 2 stems standing together
as an internal

Opard. Examinations showed that in each case the colytoids had caught in the ground and had been pulled off. Was the skin green

- (6) one case where cotyledons had been eaten & one where they had pulled off.
- (7) one case in which cotyledons had been eaten

- | | | |
|----|------|-------------------------|
| 9 | more | 38 rows |
| 9 | more | 150 yards long. |
| 10 | more | |
| 11 | more | Deer trip more than one |
| 12 | more | across trail. |

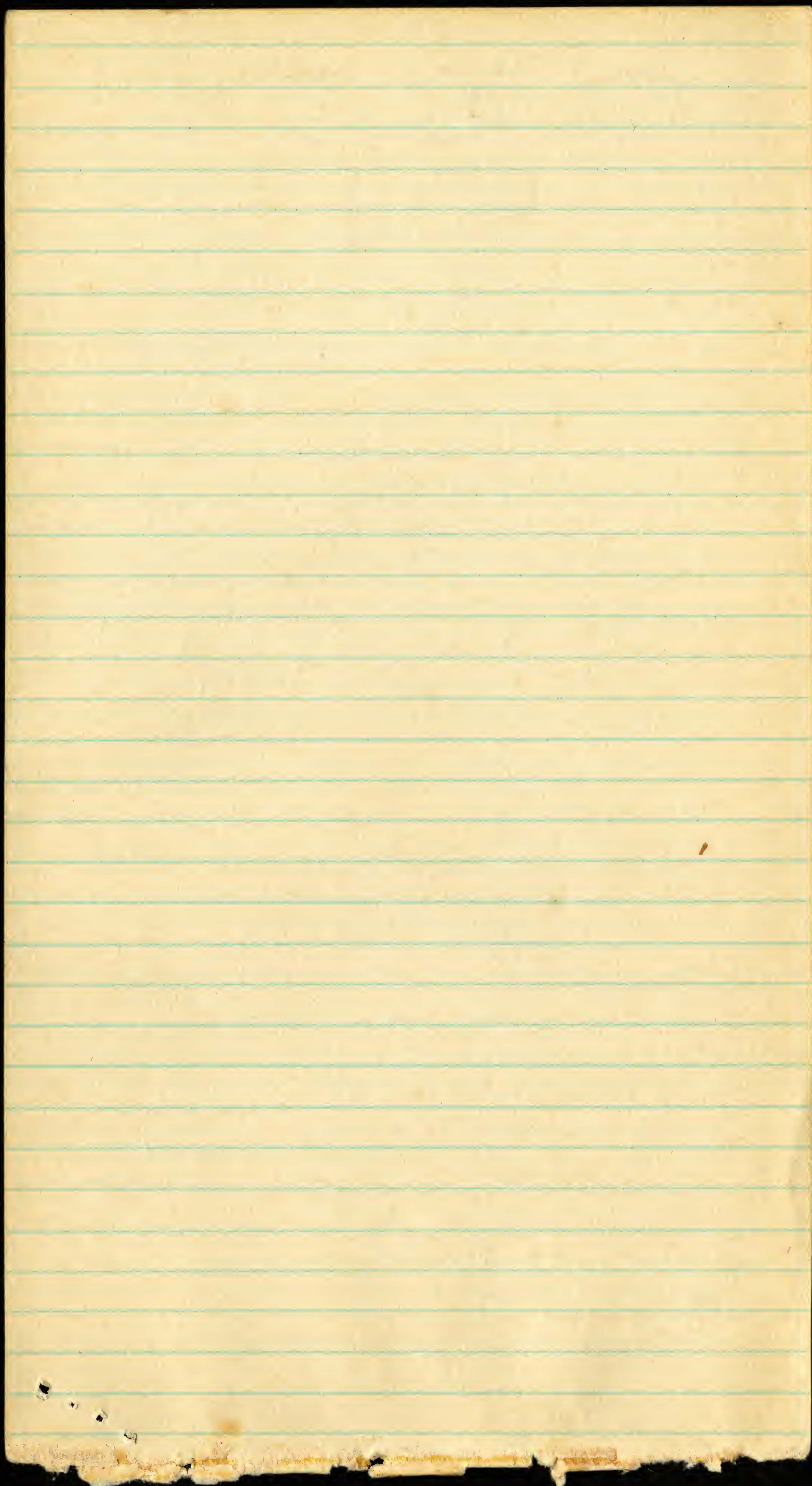
- 13 (none)
14/ none
15 none
16 one with one cotyledon gone.
Two with both cotyledons gone. off with
cotyledons killed off in a row

Warrington N.C. June 5

Robin several
Red-eyed Vireo 1
Chipping Sparrow 2
Yellow Warbler 1
Redbreasted Woodpecker 1
Great Crested Flycatcher 1
English Sparrow common
Belted Kingfisher 1
Cerulean Warbler common
Brown Thrasher pr.
Field Sparrow 1
Mockingbird 1
Waxwing several
Wood Pewee several
Chimney Swift several
Burgund
Hummingbird
Blue Grosbeak
Kingbird
Field Sparrow

Acola. June 5.

Farm of J. F. Hunter.
Robin
Bluebird (wing found)
White-breasted Nuthatch
Olive-backed Thrush
Pine Warbler feeding young ^{tip tops but not} nearly grown.
Yellow-throated Vireo
Mourning Dove III
Bluegray Gnatcatcher
Summer Tanager
Caroline Wren
Wood Pewee



Amount 32.90

North Carolina expense.

U. S. Department of Agriculture

MEMORANDUM

OF

TRAVELING EXPENSES

From....., 191

To....., 191

Use this Memorandum; it will assist
you in making up your account.
Retain for future reference. : : :

Jan 4, 191		
	Dollars.	Cents.
Breakfast ----- tip -----		
Dinner <i>1:30</i> ----- tip <i>10</i> -----	<i>1</i>	<i>40</i> ✓
Supper ----- tip -----		
Lodging -----		
Pullman porter -----		
Waiter fees -----		
Hotel porter <i>Weldon</i> -----		<i>10</i> ✓
Station porter -----		
Checking baggage -----		
<i>Lv. Washington, W.D.C. 3:05 P.</i>		
<i>Trans. reg. Washington to</i>		
<i>Weldon, D.C. 011278</i>	<i>5</i>	<i>55</i>
<i>Seat in Pullman</i>		
<i>Washington to Weldon</i>	<i>9</i>	<i>5</i> ✓
<i>arr. Weldon 8:51 P.</i>		

June 5, 191

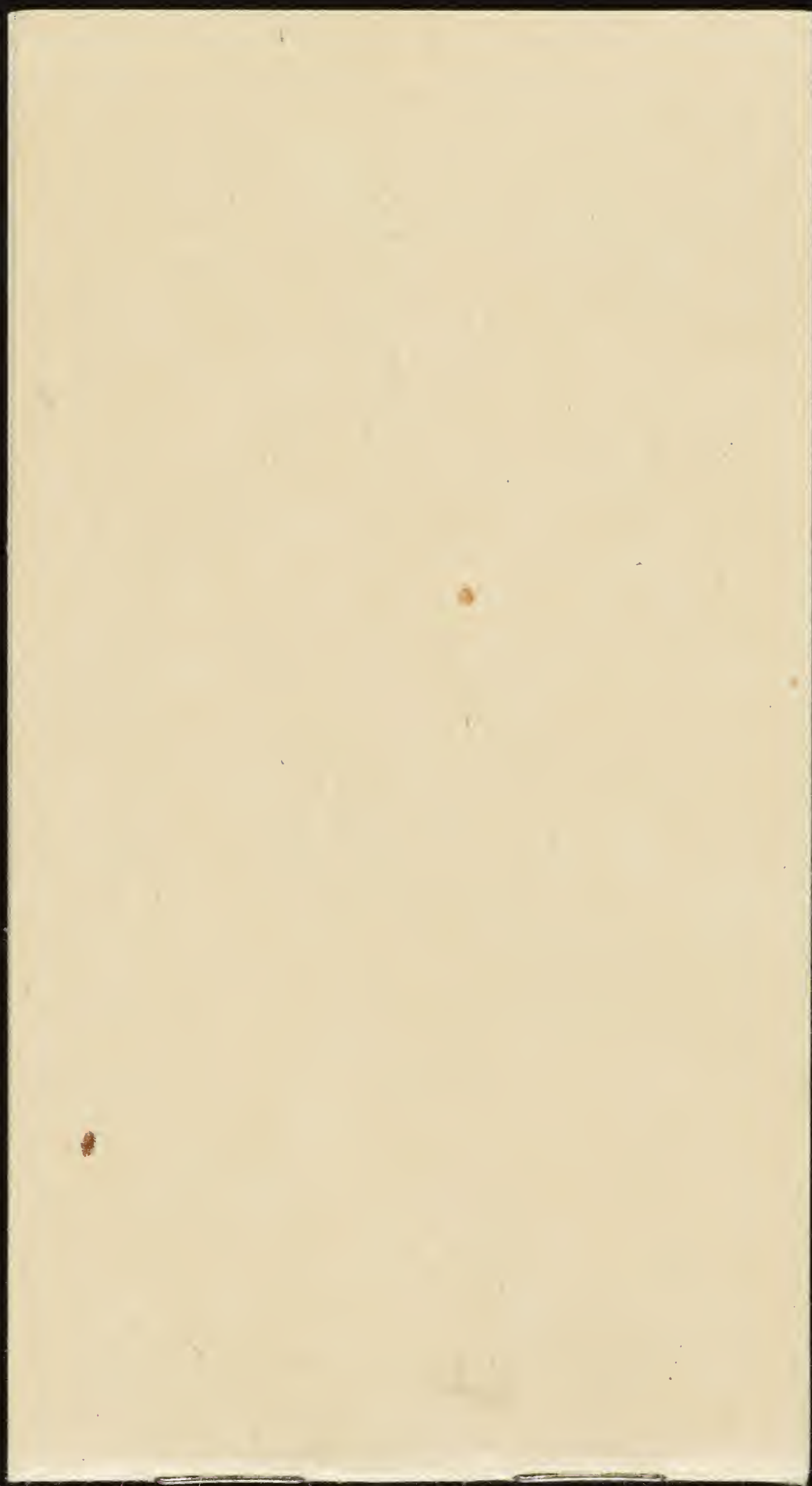
	Dollars.	Cents.
Breakfast ----- tip		
Dinner <i>Warrenton</i> ----- tip		50 ✓
Supper ----- tip		
Lodging -----		
Pullman porter -----		
Waiter fees ----- <i>Weldon</i>		10 ✓
Hotel porter ----- <i>11</i>		10 ✓
Station porter -----		
Checking baggage -----		
<i>lodging & breakfast Weldon</i>	1	50 ✓
<i>Trans. reg. Q. 112782</i>		
<i>Weldon to Warren Plains</i>		85
<i>lv. Weldon 7:10 a.m. arr.</i>		
<i>Warren Plains 8:23 a.m.</i>		
<i>auto Warren Plains</i>		
<i>to Warrenton</i>		50 ✓
<i>auto Warrenton</i>		
<i>to Arcola</i>		55 ✓
<i>lv. Warrenton 1:30</i>		
<i>arr. Arcola 3:00</i>		

8-829

June 9, 191

	Dollars.	Cents.
Breakfast ----- tip		
Dinner <i>Warrenton</i> ----- tip		50
Supper ----- tip		
Lodging -----		
Pullman porter ----- <i>Weldon</i>		10
Waiter fees -----		
Hotel porter -----		
Station porter -----		
Checking baggage -----		
<i>bd & lodging Arcola</i>		
<i>3 3/4 days @ 1.50</i>	5	65 ✓
<i>lv. Arcola 11</i>		
<i>Ar. Warrenton 12:00 no charge</i>		
<i>fare to Warren Plains</i>		50 ✓
<i>fare to Weldon</i>		85 ✓
<i>Pullman to Weldon</i>		25 ✓
<i>lv. Warren Plains 3:30</i>		
<i>arr. Weldon 4:35</i>		
<i>Trans. reg. Q. 112783</i>		
<i>Weldon to Washington</i>		55 ✓
<i>lv. Weldon 5:25</i>		

8-829



June 4 - 10, 1917.

INVESTIGATION OF DAMAGE TO GROWING CROPS BY
MOURNING DOVES IN NORTH CAROLINA.

Introduction.

In accordance with instructions and letter of authorization No. 445-B1., I left Washington on June 4 to investigate reported damage to soy beans and other crops near Arcola, North Carolina. Warrenton, N. C., the county seat of Warren County was reached on the morning of June 5. Arrangements were made with the local game commission to permit the killing of birds as needed and that afternoon I proceeded to Arcola, N. C., a small settlement about fifteen miles from the railroad. Accommodations were secured at the farm of Mr. J. F. Hunter who had made complaint to the Department of damage to his crops and work was carried on in this region until the morning of June 9. On June 6, Mr. D. L. Robertson, Game Warden of Warren County visited me. On June 9 I returned to Warrenton and then to Washington, D. C. The journey from Arcola to Warrenton was made without expense to the Department through the kindness of Mr. Weldon Davis of Arcola.

General Conditions.

The region in which work was carried on at Arcola lies on a ridge between two small streams. The land surface is rolling with slightly

elevated, rounded hills. The region has few springs and there were no streams nearer than two miles. Originally, this country was covered with a heavy stand of Pinus taeda with occasional growths of Pinus pectinatus diversified by hard wood growths of oaks, tulip and sweet gums. The pine timber has been cut off leaving large areas covered with straggling pines, dead stubs and a low deciduous second growth in which are many wood roads and small openings. Sour wood and dogwood were common. No cane was seen.

Many areas varying in size from one to a hundred or more acres have been cleared and are cultivated. Most of the fields are surrounded by the slashings described above and all are bordered by narrow lines of tree growth. The principal crops are cotton, corn, peanuts, tobacco, wheat, oats, and sweet potatoes. Some of the farmers grow melons and a few are experimenting with soy beans. Mr. Hunter had one field of Abruzzi rye.

Damage by mourning doves to growing crops.

The principal damage attributed to mourning doves (*Zenaidura m. carolinensis*) was to the soy beans. Some time early in May, Mr. Hunter with whom I was staying planted an acre or more in soy beans (*Glycine hispida*). Because of cold, wet weather these beans were slow in germinating. When they did come up, mourning doves frequented the field in some numbers and picked off the cotyledons of the sprouting plants

as they appeared above the ground. As many as fifteen or twenty doves were seen at one time in this field. Mr. Hunter shot two and examined their crops. One had eaten a large quantity of the soy bean cotyledons. The other had taken the soy bean cotyledons, a few grains of corn and many weed seeds. This first planting was almost entirely destroyed and about the twentieth of May the field was replanted. As soon as this second crop germinated the doves came in again but by keeping children at the field it was found possible to drive them ^{birds} out. Mr. Hunter stated that on Sunday, May 27, he had spent the entire day in guarding this field. At this time he made complaint to the Department.

On my arrival on June 5, I found that this first field had grown to such an extent that no further damage was threatened. Examination of plants in a series of rows across the field showed a small number from which the cotyledons were missing. A second field, a little more than an acre in extent, had been planted above here and in this about 15 per cent of the plants were just sprouting. The others were large enough to be safe from the attacks of doves. Examination of this field showed about one plant in 300 or 400 that had lost its cotyledons. Careful watch was kept upon this field and the adjoining one during the time of my stay but no further damage was observed and apparently doves had ceased to work in these fields. Only occasionally were doves seen to alight here and the birds were feeding now on other things.

From accounts and observations the mourning doves had eaten the soy bean cotyledons just as they had appeared at the surface. At this time these seed leaves are somewhat swollen and vary in color from pale green to leaf green. As these seed leaves contain nourishment for the growth of the plant until its root system is developed, their removal causes the death or stunting of the plant. In some cases it was found that the cotyledons had caught in the hard ground and had been pulled off as the stalk grew and extended so that it was necessary to dig around the base of the plant to determine whether or not the cotyledons had been eaten or had simply been left in the soil. Allowance was made for this in the estimate of damage made above.

The mourning dove was the only species implicated in damage to soy beans as the ground dove (*Chaemepelia p. terrestris*) does not occur here. Similar damage might be expected of the ground dove where it is found as legumes were eaten by the form native to Porto Rico. In seventy-two stomachs of this bird examined, a vetch was found 18 times and a wild bean (*Phaseolus lathyroides*) twice.¹

¹A. Wetmore, Birds of Porto Rico, 1916, p. 51.

Rabbits caused some damage to soybeans by eating the first leaves that appeared above the cotyledons. On farms near that of Mr. Hunter it was stated that the mourning doves damaged corn, peanuts, and melons.

In the latter case damage might be expected in some instances. A number of fields of peanuts and field corn were examined but in no case was any certain damage evident. As these crops have a different method of growth from the legumes, it seems doubtful that doves would be capable of molesting them. No evidence of their doing so was found. No remains of soy beans were found in the stomachs of the mourning doves that were collected.

Control Methods Against Mourning Doves.

The length of time during which soy beans are open to attack is short and control measures to be effective must be applied promptly. During favorable weather, an entire field should develop past the point of danger in from three to five days. In cold damp weather this period might be more or less lengthened. During this time, children or others may be employed in frightening the doves from the fields and a certain amount of shooting may be done to drive them out and make them more wary. Where the birds seem too abundant, recourse may be had to poisoning with some grain treated with strychnine. During the course of the present brief investigation, it was found that birds were present in such small numbers and frequented the cultivated areas in such an irregular manner that it was not worth while or practicable to carry on any experiments in poisoning. From the experience of men engaged in rodent extermination in the West, it appears that any of the standard strychnine baits would

be efficacious in killing doves. The preparation used for English sparrows might be preferable as it contains a proportionately larger amount of strychnine. It seems from past experience that birds in general are capable of assimilating more of this poison without harm than are mammals.

Mr. Hunter had tried out a crude method of poisoning doves by baiting with grain and beans soaked overnight in a solution of strychnine in water. By this means he had killed one bird.

Observations on the Habits of Mourning Doves.

The region about Arcola, diversified by areas of woodland and open fields, was well suited to mourning doves as they had shelter in which to rest and breed and open country in which to resort in search for food. The birds were common here but were far from abundant. In the region about Mr. Hunter's farm on June 6 I saw 10 mourning doves, on June 7, 14, and on June 8 only 8 individuals. On each of these days, I was in the field from 5:00 a.m. until 7:00 p.m., save for the time taken for meals. (This included breakfast and dinner. Supper was eaten after seven in the evening). Doves began to call about 5:30 in the morning and between then and 6:00 a.m. individuals came into the fields to feed. They were active until about 7:00 a.m. when they again retired to the woods. About 5:30 in the evening they came again to the cultivated lands and were active until about seven when they disappeared for the night. During the remainder of the day individuals were flushed

occasionally in small openings in the woods but it was a rare thing to see them crossing the open country at this time. The birds came in to feed singly, or in pairs, or threes. Once six were seen together. Apparently, these birds were all males. On two occasions as a pair of doves passed me I killed both and in each case both birds were males. Six mourning doves were collected in the time that I was at Arcola and all proved to be males. No nests of the mourning dove were found though considerable areas of woodland were traversed and I saw no birds that I was certain were females, although these doves were breeding here without question. In all of the birds examined, the testes were as large in diameter as a lead pencil. In only one individual was the lower walls of the crops thickened as they are in birds that are feeding young. As this thickening did not occur in the others, and as the males were found ranging together, it might be supposed that some or all of these birds were bachelors that were not mated. Further observations over a more extended period are needed to establish this however.

The morning of June 8 was wet and foggy and only one dove appeared in the fields. It rained heavily in the late afternoon of that day and in the evening only a few birds were noted. Apparently at this season mourning doves are more or less inactive in wet weather and secure their food about suitable places in the wooded country. On days in which the birds were working they came in to Hunter's farm from the West and

North. Some remained to feed in these fields while others passed on to large cleared areas that lay to the South.

Although the mourning dove is seldom hunted here and is said never to be molested in the breeding season, I found the birds extremely wary. In the preliminary investigations I had only two shots at birds and these were over eighty yards distant. From observation I found that in coming into feed the doves followed certain lines of flight and came to certain favorable areas so that on the following day I was able to secure five.

During the warmer portions of the day I found mourning doves resting in the tops of the tall living pines where they were well concealed by the heavy branches. In the morning and evening they came out in the usual manner on open limbs and in dead trees. In such localities it was very difficult to approach them. I tried to stalk them carefully many times but without much success. Often the birds took alarm and left the perch on noiseless wings while I was still some distance away. Or they would leave noisily just before I was within range. Often I saw them circling about tree tops with stiffly spread wings as they do during the breeding season. F

From the season of the year at which the damage to soy beans occurred it may be supposed that it was caused by individuals resident in the immediate vicinity. In this connection it is worthy of remark that the mourning dove is a common bird throughout the United States and that it is so far as known consistently a seed eater throughout the year.

In spring before new seed growths have ripened, this species is dependant upon supplies remaining from the previous year. As the season advances the quantity available will become less as the seeds lying in favorable locations will germinate. From the middle of April until the first week in June, the food supply of these birds must be so short that they will seize avidly on anything that is available. At this season, therefore, it may be expected that they may trouble legumes and other crops that germinate in the same manner. The birds observed at Arcola were feeding upon the seeds of a grass (*Panicum* sp.) that was just ripening. These were pulled off and swallowed, with their glumes, before they were entirely ripe. Mr. Hunter cut an area in his fields grown with wild onion (*Allium cernuum*) and in so doing cut a number of stalks of volunteer wheat with heads in the milk. The doves attacked this fallen wheat at once pecking off the soft kernels.

Damage to Crops by Other Birds.

At the time of my visit to Arcola wheat was headed out and the kernels were in the milk. On two occasions, pairs of blue grosbeaks (*Guiraca c. caerulea*) were seen in such fields and on watching them I found that they were eating the wheat kernels. The birds perched on inclined stalks and reaching out twisted off the soft grains. These were freed from their coverings by the bill and then swallowed. Usually one or two kernels were taken from each head and then the bird moved to another perch to repeat the performance. I examined an area approximately

ten feet square in one field and found that about twenty heads of grain had been damaged by having one or more kernels removed. Mr. J. F. Hunter told me that he had seen these birds later feeding in the wheat fields in small flocks, probably family parties.

The crow (*Corvus b. paulus*) was said to do some damage to corn by pulling the sprouting grain. More serious complaints were made of similar damage in the peanut fields. This is done of course by the resident breeding birds. On June 9, while waiting at Arcola for a means of transportation to Warrenton, complaint of crows in peanut fields was made by Mr. John O'Reilly. He said that four or five birds were feeding in a field belonging to him. He was given a formula for preparing a poisoned bait for these birds.

A common method employed in an attempt to keep crows from the fields here is to stretch twine back and forth above the cultivated area. I saw one crow walking about in the upper end of a field protected in that manner so that it may not be very successful.

Assistant Biologist.

Arcola, N. C., Bird Report.

June 5 - 9, 1917.

Alexander Wetmore.

Colinus virginianus.

Quail were very common and were nesting at this time. Many were seen in fields of wheat, oats, and vetch.

Zenaidura m. carolinensis.

Common, breeding. Several collected. For notes on habits see of injury report on Investigation/to Growing Crops by Mourning Doves, for this same period.

Cathartes a. septentrionalis.

Fairly common. Seen daily.

Coragyps uruba.

Said to occur at times when carrion was available. Known locally as the "South Carolina Buzzard."

Accipiter cooperi.

One was seen on June 7.

Buteo lineatus.

One seen June 8.

Buteo platypterus platypterus.

One seen June 7.

Bubo virginianus virginianus.

One was heard calling late in the afternoon on June 7.

Coccyzus a. americanus.

Tolerably common. One or two were heard or seen each day during my stay here.

Dryobates villosus.

Hairy woodpeckers were fairly common about Arcola. Adults feeding well grown young that flew and climbed about in the trees were seen June 8. As no specimens were collected the form of this woodpecker occurring here is uncertain.

Dryobates pubescens.

One was seen near Arcola on June 7. Another was observed at Warrenton, June 9.

^S
Melanerpes erythrocephalus.

One was seen near Arcola on June 7 and others were noted at Warrenton on June 5 and 9.

Colaptes a. auratus.

Fairly common about Arcola. At this time the birds were quiet and little in evidence.

Antrostomus carolinensis.

Fairly common. Heard calling at dusk, and again before daylight in the morning. None were seen.

Chordeiles v. virginianus.

One was seen on June 6.

Chaetura pelagica.

Fairly common about farmhouses near Arcola. Chimney swifts were seen at Warrenton, also on June 5 and 9.

Archilochus colubris.

Abundant in the region south of Arcola. Humming birds were seen daily flying across the cultivated fields to visit flowering vetches. In the pine woods they worked about the tips of the branches examining the needles, passing quickly from tree to tree. In deciduous growths they came to visit oak trunks and branches, where the sap, oozing from small incisions, had attracted small diptera and other insects. At times three or four individuals would gather at the same tree and squabble fiercely over the right to feed. One such tree that I watched on several occasions was visited only by males. Another tree that I found on June 8 was frequented at that time by females only.

Tyrannus tyrannus.

Fairly common near Arcola.

Myiarchus crinitus.

Common in the wooded areas about Arcola.

Myiochanes virens.

Common in wooded areas. Heard calling throughout the day.

Empidonax virescens.

Fairly common in low woods. Males were calling at intervals.

Cyanocitta cristata.

Fairly common at Arcola. Common at Warrenton.

Corvus b. paulus.

Fairly common about Arcola. Young in the nest were heard calling on several occasions. An adult male that I collected belongs to this small southern form. (Specimen).

Passer domesticus hostilis.

The English sparrow was common all through the country about Arcola, and a few pairs were found about every farm house. The birds were frequently flushed along the country roads while others were found in the fields.

Astragalinus tristis tristis.

Common near Arcola. Birds were seen at Warrenton on June 5 and 9.

Poocetes g. gramineus.

Two were seen between Grove Hill and Warrenton on June 9. The birds flew up from the road but alighted only a few feet away. Identification was positive though it was not practicable to collect the birds at this time.

Spizella passerina passerina.

Abundant about Mr. J. F. Hunter's farm one mile south of Arcola. There were at least 20 pairs here and perhaps more on as many acres of ground. Apparently, they lay a small number of eggs in each set.

Two nests under observation contained two and three eggs respectively.

The birds must breed late in this region as only two or three individuals in immature plumage were seen.

Spizella pusilla pusilla.

Fairly common near Arcola.

Cardinalis cardinalis cardinalis.

Fairly common near Arcola.

Guiraca caerulea caerulea.

Common near Arcola. These grosbeaks were found in openings grown with low brush and along the borders of fields. They were breeding but as yet did not have young on the wing.

Passerina cyanea.

Fairly common near Arcola.

Piranga rubra rubra.

Common in wooded areas around Arcola. These birds seemed rather inquisitive and scolded sharply when I passed near the borders of the woods. They responded readily to "Squeaking" and then were much excited.

Progne subis subis.

Martins nested in boxes and gourds suspended near the farm houses. The birds were fairly common. Complaint was made that the English sparrow occupied the nesting places provided for the martins.

Bombycilla cedrorum.

Small flocks of four or five birds each were seen daily.

Vireosylva olivacea.

Abundant. Nesting.

Vireo g. griseus.

Two males were seen near J. F. Hunter's farm below Arcola.

Compsothypis a. americana.

Common in deciduous growths. Males were heard singing daily.

Dendroica ae. aestiva.

A pair frequented an orchard on the farm of J. F. Hunter.

Dendroica d. dominica.

Common about the farm of J. F. Hunter below Arcola.

Dendroica virens.

A male was seen in a growth of pine on June 6.

Dendroica v. vigorsii.

Very common. Many of these warblers were feeding young that had left the nest.

Dendroica discolors

Fairly common near Arcola.

Seiurus aurocapillus.

Common near Arcola.

Geothlypis trichas trichas.

Fairly common.

Icteria virens virens.

Common near Arcola. Males were seen singing from the tops of tall trees.

Wilsonia citrina.

Fairly common near Arcola.

Mimus polyglottos polyglottos.

Fairly common.

Dumetella carolinensis.

Fairly common near Arcola.

Toxostoma rufum.

Fairly common.

Thryothorus ludovicianus ludovicianus.

Common. These birds were found in family parties at this time though the young were now able to care for their own wants in the way of food. At Hunter's Farm these wrens came about the porches and fed in the barn and outbuildings showing very little fear. One brood was much excited when they discovered me as I was skinning a crow and a little "squeaking" added to their agitation.

Sitta carolinensis cooki.

Fairly common. These birds were feeding young out of the nest.

Sitta pusilla.

Five were seen on June 6 feeding in pines.

Baeolophus bicolor.

Fairly common.

Penthestes c. carolinensis.

Tolerably common. Young were out of the nest and fully grown.

Polioptila caerulea caerulea.

Common. Blue-gray gnatcatchers were feeding young that had left the nest.

Hylocichla mustelina.

Common.

Planesticus migratorius achrusterus.

Common; breeding about farm houses near Arcola.

Sialia sialis sialis.

Fairly common. Fully grown young were seen.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

No. 445-Bi.

EXPENDITURE AUTHORIZATION

Washington, D. C., June 13, 1917.

Mr. Alex Wetmore,

Assistant Biologist.

Your authorization No. 445-Bi., payable from the appropriation "General Expenses, Bureau of Biological Survey, 1917" (Food Habits of Birds and Mammals), is hereby amended so as to decrease the amount which may be expended thereunder from \$100 to \$35.

Your permanent headquarters will be Washington, D. C.

E. W. Nelson
Chief Clerk and Executive Assistant.

E. W. Nelson

Chief, Biological Survey.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY
WASHINGTON, D. C.

June 4, 1917.

ADDRESS REPLY TO
CHIEF, BUREAU OF BIOLOGICAL SURVEY,
AND REFER TO

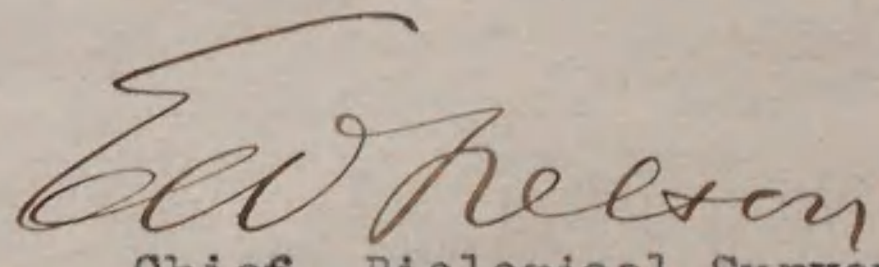
Dr. Alexander Wetmore,
Assistant Biologist,
Bureau of Biological Survey.

Dear Sir:

In accordance with Letter of Authority No. 445, dated June 2, 1917, you will proceed today to Warrenton and Arcola, N. C., where you will investigate reported damage to farm crops by doves. At Warrenton, you will arrange with the County Game Commission for permission to collect birds for the purpose of learning how much damage is being done and by what species. If you find that notable damage is being committed, you will endeavor to devise means of prevention and control. If you learn of like destructiveness by birds at other points in the State, you are authorized to visit these localities and make similar investigations.

Upon completion of this work, you will return to Washington,
D. C.

Very truly yours,


Chief, Biological Survey.

wlm-ohw

APR. 16

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF BIOLOGICAL SURVEY

LETTER OF AUTHORIZATION

No. 445231.Washington, D. C., **June 2, 1917.**Mr. Alexander Wetmore,Assistant Biologist.

Under authority contained in the Secretary's letter, No. ⁵⁸⁶ 8 Sec., dated **DEC** July 1, 1916, you are hereby authorized to incur such expenses as may be necessary, in accordance with the Fiscal Regulations of the Department, for the purpose stated and during the period named below, not to exceed \$ **100.00**, to be paid from the appropriation "General Expenses, Bureau of Biological Survey, 1917." (**Food Habits of Birds and Mammals**).

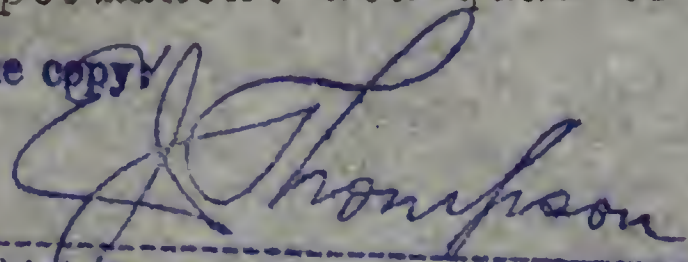
Proceed from Washington, D. C. on June 4, 1917, or as soon thereafter as practicable, to Arcola and other points in North Carolina, for the purpose of investigating damage to farm crops by birds and devising methods of control. You are further authorized to hire temporary assistants (subject to the rules of the Civil Service Commission), pay for their subsistence and transportation while in a travel status, to hire special means of conveyance when necessary, to purchase necessary field supplies, and to incur all other necessary expenses in connection with the above work.

Upon completion of this work return to Washington, D.C.

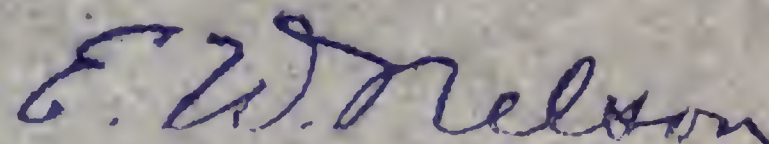
No expense for freight charges to be incurred hereunder.

Your permanent headquarters will be **Washington, D.C.**

A true copy:



Chief Clerk and Executive Assistant.



Chief, Biological Survey.

J. F. Hunter
Arcola, ~~Ill~~

U S. DEPARTMENT OF AGRICULTURE.

BIOLOGICAL SURVEY

WASHINGTON, D. C.

N.C.

June 2, 1917.

Mr. W. L. McAtee:

The annexed letter was referred to me for consideration.

Apparently Mr. Hunter resides in Warren County which is not under the jurisdiction of the Audubon Society. State laws applicable to Warren County formerly protected doves but the last revision of the game law gives doves no protection. Opportunity has not been afforded to examine the laws of 1917 to ascertain whether any change has been made. The game laws of Warren County are administered by a committee known as the Game Commission of Warren County. — *See the Commission*

The migratory bird regulations prescribe a daily closed season on all migratory birds including doves from sunset to sunrise.

Is it good policy to advise the use of poisons for the killing of birds? *Don't worry*

If doves eat the poison between sunset and sunrise, would not the party putting out the poison be guilty of a violation of the regulations?

Lawyer.

U. S. DEPARTMENT OF AGRICULTURE,
BIOLOGICAL SURVEY
WASHINGTON D. C.

Stephen H. Rose

Edmund Shill - ~~Shill~~

W. P. Perry

J. M. Clements -

W. P. Burrill Chairman

Game Commission

of Warren County N.C.

W. A. Burrill

Clk, Game Commission

% Burrill Drug Co

Warrenton, N.C.

Game Commission desires information
regarding findings on Dove question

COPY O N K.

Arcola, N. C.

May 29, 1917.

Department of Agriculture,

Washington, D. C.

Dear Sirs:

Can you tell me how to stop the destruction of my crops by doves? They are eating off the seed leaves of soy beans as soon as they get out of the ground. Have destroyed my whole crop of them so far. My neighbors tell me that they are also destroying peanuts and melons in the same way. Now, when everybody is urging the farmer to produce food, is no time to feed doves on \$5.00 soy beans and plant them for them besides. I will appreciate your help.

So far as I have been able to ascertain doves eat only seeds and very few, if any, insects.

Yours truly,

J. F. Hunter.